

Amendments to the Drawings

The attached sheet of drawings includes changes to Fig. 7. This sheet, which includes Figs. 7 and 8, replaces the original sheet including those same Figures.

The injecting step of Fig. 7 has been amended to be consistent with the description of that step in the main body of the specification and the originally filed claims, removing an obviously mis-spelled word from Fig. 7.

Attachment: Replacement Sheet
 Annotated Sheet Showing Changes

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-18 and 23 are now present in this application. Claims 1, 8, 10, 12 and 16 are independent.

Amendments have been made to the drawings, claims 1, 2, 8, 10-12 and 16 have been amended, non-elected claims 19-22 have been canceled without prejudice to being presented in a continuing, e.g., divisional, patent application, and claim 23 has been added. No new matter is involved. Support for the subject matter of claim 23 is found in Applicants' originally filed disclosure including, for example, from page 10, line 11 through page 11, line 4 of the main body of the specification.

Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority documents.

Restriction Requirement

The Examiner has made the Restriction Requirement final, and has withdrawn claims 16-22 from further consideration.

Applicants continue to traverse the restriction requirement, as well as the withdrawal from consideration of non-elected claims 16-18. Non-elected claims 19-22 have been canceled.

Applicants respectfully submit that the previous Office Actions have improperly applied the test set forth in MPEP §806.05(e) for demonstrating distinctness between claims 1-15 and claims 16-18, and have completely failed to demonstrate that there is a serious burden on the Examiner to search and examine claims 16-18, as required by MPEP §803.

The previous Office Actions indicate that the apparatus, as claimed, can be used to practice another and materially different process such as compression molding. Applicants respectfully disagree because the invention, as recited in claims 16-18, is an injection molding method, and the apparatus, as recited in claims 1-15, is an injection molding apparatus. Nowhere do the claims recite a compression molding apparatus, and the test set forth on MPEP §806.05(e) is to be applied to the "invention, as claimed."

Accordingly, the Office has not met its burden of establishing that the invention recited in claims 1-15 is distinct from the invention recited in claims 16-18.

Thus, the restriction requirement is improper in this regard and must be withdrawn regarding claims 1-18 and claims 16-18 should be examined on their merits.

Objection to the Drawings

The Examiner has objected to the drawings. The Examiner states that Figures 1-3 should be labeled --Prior Art-- not "Conventional Art".

In order to address this objection, Applicants respectfully submit that the suggestion in MPEP § 608.02(g) of the use of the phrase --Prior Art-- does not exclude the use of alternate phrases, for example, "Background Art" and "Conventional Art". These alternative phrases may be found in many U.S. Patents issued today. The intent of MPEP § 608.02(g) is to distinguish Applicants' invention from that which is not Applicants' invention. If a drawing figure illustrates only material which is known to be statutory prior art to the invention, then the use of the phrase --Prior Art-- in the drawing figure would be proper. However, if it is not clear whether such material is statutory prior art, then the use of the phrase --Prior Art-- in the drawing figures would not be proper, and a label such as "Background Art" or "Conventional Art" would be more appropriate.

The Examiner also objects to the language "Injecting foamispace of

injection molding agent-contained molten mold material into molding” in Fig. 7. In order to overcome this objection, Applicants have amended that language by replacing it with the following language, - - Injecting the injection molding agent-contained molten mixture into the molding space - -. Support for this language is found in Applicants’ originally filed disclosure, including on pages 11 and 12 of the main body of the specification that describes Fig. 7.

Reconsideration and withdrawal of these objections are respectfully requested.

Specification Amendments

Applicants have amended the specification in order to correct minor grammatical errors.

Rejection Under 35 U.S.C. § 102

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,468,141 to Iwami et al. (“Iwami”). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Claims 1-7, as amended, positively recite a combination of features of an

injection mold including (1) a fixed mold having a passage for injecting a fluid therethrough and an internal space; (2) a movable mold detachably attached to the fixed mold and forming a molding space together with the internal space of the fixed mold; and (3) a same flow accelerating material means provided on the inner walls of both the fixed mold and the movable mold that form the molding space for accelerating flow of the fluid injected into the injection mold.

Iwami does not disclose this combination of features.

For example, Iwami's cavity block 2 has an insulating material layer 1 welded thereto (col. 9, lines 52-65), while Iwami's core block 8 has a different release function insulating material layer 4. In other words, Iwami does not disclose that the inner walls of its injection molding space have the same flow accelerating material means provided thereon, as claimed.

Accordingly, reconsideration and withdrawal of this rejection of claims 1-7 are respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwami in view of U.S. Patent 5,076,339 to Smith. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

The Office Action clearly admits that Iwami does not disclose that its coating material is a solid lubricant. In an attempt to remedy this deficiency, the Office Action turns to Smith, which discloses a molten metal die casting process using a plunger 18 movable in a shot chamber or sleeve 16, that requires efficient plunger lubrication to prevent metal adhering to the walls of the shot chamber or sleeve and to the tip of the plunger and to minimize galling and wear of the plunger and shot chamber (col. 1, lines 10-27).

The Office Action concludes that it would be obvious to modify Iwami to provide a solid lubricant such as molybdenum disulphide to reduce frictional and shear forces, provide metal to metal lubrication between the cavity halves of Iwami and also to provide insulation between the cavity surface and the mold resin, which allegedly also deters the metal from sticking to the mold surface.

Applicants respectfully disagree for a number of reasons.

Firstly, Iwami and Smith have fundamental differences that teach away from combining their teachings, as suggested. Iwami deals with an injection molding machine that does not have a shot chamber or a piston movable therein, and does not cast molten metal that tends to cause the problems mentioned by Smith. Iwami does not need to lubricate a piston because Iwami does not employ a piston. Iwami does not need to prevent galling and wear of a plunger or a shot chamber because Iwami does not have a plunger or a shot chamber.

Secondly, Iwami discloses injection molding of a thermoplastic resin, not of molten metal and the office Action has not provided objective factual evidence that the characteristics of a molten metal such as aluminum, magnesium and copper alloys (col. 3, lines 42-44) in a die casting device are similar to those of a thermoplastic resin in an injection molding device with respect to reducing mold marks.

Thirdly, the Office Action fails to provide objective factual evidence of why one of ordinary skill in the thermoplastic resin injection molding art would turn to a molten metal die casting machine art reference that has no disclosure of mold cavity coatings to modify the mold cavity coatings of a thermoplastic resin injection device.

Fourthly, the Office Action fails to provide objective factual evidence to explain why one of ordinary skill in the art would be motivated to turn to a molten metal die casting device's shot chamber plunger lubricant features to modify Iwami's thermoplastic resin injection molding machine's inside mold characteristics.

Applicants respectfully submit that the only motivation for this proposed modification of Iwami is Applicants' own disclosure which may not be properly used against Applicants.

Accordingly, reconsideration and withdrawal of this rejection of claims 8 and 9 are respectfully requested.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwami in view of U.S. Patent 6,099,287 to Higashida et al. ("Higashida"). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

The Office Action clearly admits that Iwami fails to disclose that the coating material is a solid metal.

In an attempt to remedy this deficiency, the Office Action turns to Higashida, which discloses an optical disk injection molding device that uses a shaped stamper element 3 that is provided on mold element 2. Higashida provides a stamper protecting layer 111 on the back side of the stamper 3 between the stamper 3 and the face of mold 2, i.e., in a position where the stamper protecting layer 111 does not come in contact with the optical disk resin injected into the mold. Higashida's stamper protecting layer 111 is made of metal such as indium, lead, tin, or the like.

Despite the fact that this stamper protecting layer 111 does not come into contact with the optical disk resin, the Office Action speculates that it would be obvious to provide such a material to coat the mold inner surface, that does come in contact with the thermoplastic resin.

Applicants respectfully submit that a metal that is provided on the back side of a stamper and does not in any way come in contact with the thermoplastic resin being injected or provide any flow accelerating characteristics to the injected resin is completely irrelevant to the claimed invention and that one of ordinary skill in the art would have absolutely no incentive to turn to Higashida to modify Iwami's inside mold surface that comes in contact with the molding resin to provide flow acceleration to the molding resin.

Accordingly, this rejection of claims 10 and 11 is improper and should be withdrawn.

Claims 12-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 3,674,401 to Annis, Jr., et al. ("Annis") in view of Iwami. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Claims 12-15 positively recite a combination of features including a same flow accelerating material means provided on the inner walls of both the fixed mold and the movable mold that form the molding space for accelerating flow of the fluid injected into the injection mold.

Iwami fails to disclose this combination of features, for reasons discussed

above regarding claims 1-7. Accordingly, even if one of ordinary skill in the art were properly motivated to modify Annis as suggested, in view of Iwami, the resulting modified version of Annis would not disclose, suggest, or render obvious, the claimed invention.

Accordingly, this rejection does not make out a *prima facie* case of obviousness of the invention recited in claims 12-15, and should be withdrawn.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert J. Webster, Registration No. 46,472, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Application No.: 10/772,315
Art Unit 1722


Attorney Docket No. 0630-1953P
Reply to January 25, 2005 Office Action
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Replacement Drawing Sheets
Annotated Drawing Sheets

ANNOTATED SHEET

FIG. 7

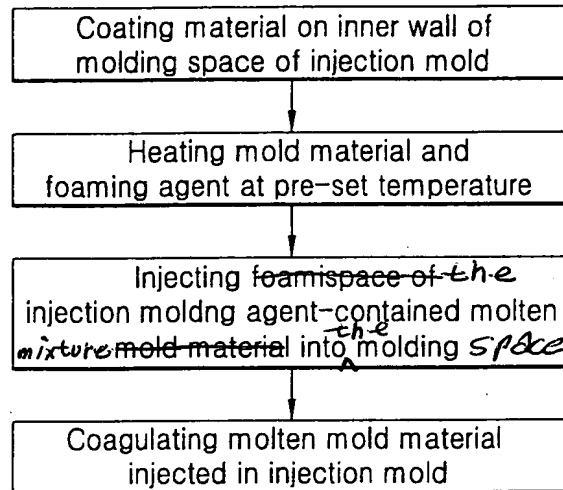


FIG. 8

